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Impact of Oxytocin Massage for Postpartum Mothers on Breast Milk Production

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ABSTRACT

Introduction Mother's Milk is a divine gift explained in the Quran, Surah Lukman verse 14, which recommends mothers to breastfeed their children for a full two years. Breast milk is considered the best source of nutrition for infants, especially within the age range of 0–6 months. However, not all breastfeeding mothers can easily produce breast milk directly, as the process involves a complex interaction influenced by the hormone oxytocin. This study aims to assess the impact of applying oxytocin massage on breast milk production in postpartum mothers in the Working Area of Waimital Community Health Center, Kairatu District, West Seram Regency. The research design used is quasi-experimental, with sample selection using non-probability sampling involving 20 respondents. The research instrument used a questionnaire, and data analysis was conducted using the Mann-Whitney test and Wilcoxon test to evaluate changes before and after the intervention for each variable. The bivariate analysis results based on the treatment group variable showed the highest P-value at 0.008 and the lowest at 0.003 (< 0.05), while in the control group, the highest P-value was 0.157 and the lowest was 0.083 (< 0.05). Thus, it can be concluded that the application of oxytocin massage has a highly significant effect on breast milk production in postpartum mothers in the treatment group.

INTRODUCTION

Breast milk is a gift from God as explained in Surah Lukman verse 14 of the Qur'an, which mandates that mothers breastfeed their children for two full years. The importance of breast milk as the best source of nutrition for infants, especially in the 0-6 month age range, is emphasized. Exclusive breastfeeding requires attention to the mother's nutrition and protein intake, as this can affect the quality of breast milk.

If there are problems with milk production, it is recommended to perform oxytocin massage, a method that stimulates prolactin and oxytocin hormones after childbirth (Asih, 2017). The basic capital of child growth begins in the womb and continues with breastfeeding. Breast milk is considered the most ideal and balanced natural food for infants, naturally adapted to their development.

As the perfect baby food in terms of both quality and quantity, breast milk has been advocated by the World Health Organization (WHO) for global use, as a measure to improve human health worldwide (WHO & FAO, 2019).

Breastfeeding is a skill that both mother and baby need to learn, requiring both to invest six months of time and patience to meet the baby's nutritional needs. A decrease in milk production in the first few days after delivery may be due to a lack of stimulation of the hormones prolactin and oxytocin, which may not flow smoothly. Therefore, many mothers choose to give formula milk to meet the baby's nutritional needs and provide a substitute option when breast milk production is insufficient. Formula milk is considered practical and easy to obtain by mothers, but UNICEF states that formula-fed infants have a higher risk of malnutrition in their first month of life, with a risk 25 times higher than infants who are exclusively breastfed by their mothers (Yessi, 2018).

During pregnancy, the hormones estrogen and progesterone play a role in the development of the alveolus and lactiferous ducts in the breast. After delivery, a drop in estrogen levels triggers a rise in prolactin, a key hormone in breastfeeding. Breastfeeding is a complex process, and understanding how the breasts produce breastmilk helps mothers to exclusively breastfeed. Hormones and reflexes work together in the production of breastmilk; when the baby sucks, there is a prolactin reflex that stimulates milk production and a milk ejection reflex, or “let down” reflex (Natalia, 2019).

Oxytocin massage is a solution to the problem of poor milk production. This massage involves massaging from the 5th-6th costal bone to the scapula, stimulating the parasympathetic nervous system to release oxytocin. In addition to expressing breast milk, stimulation of prolactin and oxytocin hormones in mothers after childbirth can be achieved through breast care, nipple cleaning, frequent breastfeeding even if milk has not been released, early and regular breastfeeding, and oxytocin massage (Adriani, 2017). The hormone oxytocin is released through stimulation of the nipple by the baby's suction or massage of the mother's spine. Spinal massage helps the mother feel calm, relaxed, increase her pain threshold, and love her baby, so that oxytocin can quickly stimulate milk production. This concept is in line with the government's “Back to Nature” recommendation, as well as the

culture of puerperal massage in Javanese society, although it has not been fully researched regarding its benefits to puerperal mothers (Hesti, 2013; Lestari and Delima, 2017).

Based on World Health Organization (WHO) statistics in 2017, exclusive breastfeeding coverage data in countries with coverage below 50% are as follows: Afghanistan 43.1%, Mexico 30.1%, Myanmar 50.1%, Nigeria 23.3%, Paraguay 29.6%. WHO analyzed more than 3,000 studies and concluded that exclusive breastfeeding for 6 months is the optimal duration based on scientific evidence showing that exclusive breastfeeding better meets the nutritional needs and supports infant growth. While breastmilk is the primary food for infants and is critical to their health, not all infants are exclusively breastfed by their mothers. UNICEF notes that the average coverage of exclusive breastfeeding worldwide is around 38%.

Indonesia's 2018 Health Profile shows an increase in coverage of exclusively breastfed infants, reaching 65.16%, which is higher than the coverage in 2017 of 61.33% (MOH, 2018). However, at the provincial level, exclusive breastfeeding coverage in Maluku in 2019 reached 43.35%, slightly higher than the previous year, which was 44.45% in 2018. However, this percentage is still below the national target of 80%.

By detailing data from the Waimital Community Health Center, Kairatu District, West Seram Regency, in 2019, out of a total of 110 postpartum mothers, only 47 people (42.72%) breastfed. In 2020, out of 121 postpartum mothers who breastfed, only 35 (28.92%). In 2021, there were 44 postpartum mothers from January to June, and as many as 20 postpartum mothers with expected birth dates from July to August.

METHOD

This study adopted a Quasi-Experiment method design with a pre-post test design with control group approach. The research was conducted at the Waimital Health Center Work Area, Kairatu District, West Seram Regency, starting from July 11 to August 25. The population taken in the study included 20 respondents of pregnant women with HPL in the range of July 15 to August 24, 2023, and the selection of respondents was carried out using non-probability sampling techniques with a consecutive sampling approach. The independent variable in this study was Oxytocin Massage, while the dependent variable was breast milk production.

Data collection was done through filling out questionnaires and observation sheets, with the data processing stage involving editing, coding, scoring, and tabulation.

RESULTS AND DISCUSSION

Statistical analysis was performed using the Mann-Whitney test and Wilcoxon test to evaluate the results of this study. The implementation of the study aims to determine the effect of Oxytocin Massage on breast milk production in pregnant women at the Waimital Health Center.

Tabel 1. Distribution of Respondent Characteristics by Treatment Group and Control Group

Variabel	Treatment Group (n=10)		Control Group (n=10)	
Mother's Age	**n**	**%**	**n**	**%**
<20 Years	2	20	2	20
20-35 Years	5	50	5	50
>35 Years	3	30	3	30
Parity				
Parimiparous	4	40	1	10
Multiparous	6	60	9	90
Occupation				
Civil Servant	2	20	7	70
Housewife	5	50	3	30
Other	3	30	0	0
P. Last				
High School	8	80	8	80
Bachelor	2	20	2	20
Total	**10**	**100**	**10**	**100**

From the data in Table 1 attached, it can be concluded that in describing the characteristics of respondents based on maternal age, out of 10 respondents, most are in the age range of 20-35 years, which includes 5 respondents (50%). Meanwhile, in the context of characteristics based on Parity, the majority of respondents fall into the Multiparous category, with a total of 6 respondents (60%). When viewed from the point of view of employment, the characteristics of respondents show that the majority work as housewives, with a total of 5 respondents (50%). In addition, when looking at the characteristics of respondents based on their latest education, the majority of them had completed high school, as many as 8 respondents (80%).

Table 2. Frequency Distribution of Respondents Based on Treatment and Control Categories, Before and After Application of Oxytocin Massage.

Variabel	Treatment				Control			
	Normal		Not Normal		Normal		Not Normal	
	n	%	n	%	n	%	n	%
Baby Weight								
Before	2	20	8	80	3	30	7	70
After	10	100	0	0	5	50	5	50
Breastfeeding Frequency								
Before	3	30	7	70	1	10	9	90
After	10	100	0	0	4	40	6	60
Infant Sleep Duration								
Before	1	10	9	90	1	10	9	90
After	10	100	0	0	3	30	7	70
Frequency of Urination								
Before	2	20	8	80	3	30	7	70
After	10	100	0	0	5	50	5	50
Frequency of Defecation								
Before	3	30	7	70	1	10	9	90
After	10	100	0	0	4	40	6	60
Mom's Break Time								
Before	1	10	9	90	1	10	9	90
After	10	100	0	0	3	30	7	70

Based on the data in Table 2, it can be concluded that in the variable of infant weight in the treatment group, before undergoing oxytocin massage, there were 2 respondents (20%) with normal weight and 8 respondents (80%) with abnormal weight. After performing oxytocin massage, all respondents (100%) showed an increase with normal weight. Meanwhile, in the control group before oxytocin massage, 3 respondents (30%) had normal body weight and 7 respondents (70%) had abnormal body weight. After undergoing oxytocin massage control, 5 respondents (50%) showed improvement with normal weight, and 5 respondents (50%) remained in the abnormal category.

For breastfeeding frequency variable in the treatment group, before oxytocin massage, 3 respondents (30%) showed normal breastfeeding frequency and 7 respondents (70%) were abnormal. After undergoing

oxytocin massage, all respondents (100%) showed improvement with normal breastfeeding frequency. In the control group before oxytocin massage, 1 respondent (10%) had normal breastfeeding frequency and 9 respondents (90%) were abnormal. After undergoing oxytocin massage control, 4 respondents (40%) showed improvement with normal breastfeeding frequency, while 6 respondents (60%) remained in the abnormal category.

In the context of infant sleep duration variable in the treatment group, before undergoing oxytocin massage, there was only 1 respondent (10%) with normal infant sleep duration, while 9 respondents (90%) showed abnormal sleep patterns. After the application of oxytocin massage, all respondents (100%) showed changes with normal infant sleep duration. In the control group, before oxytocin massage, 1 respondent (10%) showed normal infant sleep duration, and 9 respondents (90%) had abnormal sleep patterns. After undergoing oxytocin massage control, 3 respondents (30%) showed improvement with normal infant sleep duration, while 7 respondents (70%) remained in the abnormal category.

For the frequency of urination variable in the treatment group, before oxytocin massage, 3 respondents (30%) showed normal urination frequency, while 7 respondents (70%) showed abnormal patterns. After oxytocin massage, all respondents (100%) showed changes with normal frequency of urination. In the control group, before oxytocin massage, 3 respondents (30%) showed normal frequency of urination, and 7 respondents (70%) showed abnormal pattern. After undergoing oxytocin massage control, 5 respondents (50%) showed improvement with normal frequency of bowel movements, while 5 respondents (50%) remained in the abnormal category.

On the defecation frequency variable in the treatment group, before oxytocin massage, 3 respondents (30%) showed normal defecation frequency, while 7 respondents (70%) showed abnormal patterns. After oxytocin massage, all respondents (100%) showed changes with normal bowel movements. In the control group, before oxytocin massage, 1 respondent (10%) showed normal bowel movement frequency, and 9 respondents (90%) showed abnormal pattern. After undergoing oxytocin massage control, 4 respondents (40%) showed improvement with normal bowel movement frequency, while 6 respondents (60%) remained in the abnormal category.

In terms of maternal rest time variables in the treatment group, before undergoing oxytocin massage, there was only 1 respondent (10%) with normal maternal rest time, while 9 respondents (90%) showed abnormal rest time patterns. After the application of oxytocin massage, all respondents (100%) showed changes with normal maternal rest time. In the control group, before oxytocin massage, 1 respondent (10%) showed normal maternal rest time, and 9 respondents (90%) had abnormal rest time pattern. After undergoing oxytocin massage control, 3 respondents (30%) showed improvement with normal maternal rest time, while 7 respondents (70%) remained in the abnormal category.

Table 3. Effect of Oxytocin Massage on Milk Production

Variabel		n	Mean rank	Sum of ranks	P-Value
Baby Weight Post- Baby Weight Pre	Negative ranks	0	0,00	0,00	0,005
	Positive ranks	8	4,50	36,00	
	tiets	2			
F. Breastfeeding Post- F. Breastfeeding Pre	Negative ranks	0	0,00	0,00	0,008
	Positive ranks	7	4,00	28,00	
	tiets	3			
Baby's sleep duration Post- Baby's sleep duration Pre	Negative ranks	0	0,00	0,00	0,003
	Positive ranks	9	5,00	45,00	
	tiets	1			
Frequency of urination Post- Frequency of urination Pre	Negative ranks	0	0,00	0,00	0,005
	Positive ranks	8	4,50	36,00	
	tiets	2			
Frequency of defecation Post- Frequency of defecation Pre	Negative ranks	0	0,00	0,00	0,008
	Positive ranks	7	4,00	28,00	
	tiets	3			
Mom's Break Time Post - Mom's Break Time Pre	Negative ranks	0	0,00	0,00	0,003
	Positive ranks	9	5,00	45,00	
	tiets	1			
Total	**20**	**10**			

Based on the data listed in Table 3, it can be concluded that in the variable of baby weight (BB) post-BB pre in the treatment group, based on the negative rank has a mean ranks value of 0.00 and sum of ranks of 0.00, while based on the positive rank has a mean ranks value of 4.50 and sum of ranks of 36.00, with a P-value of 0.005.

In the variable of breastfeeding frequency (F. breastfeeding) post-F. breastfeeding pre in the treatment group, the negative rank had a mean ranks value of 0.00 and sum of ranks of 0.00, while the positive rank had a mean ranks value of 4.00 and sum of ranks of 28.00, with a P-value of 0.008. For the variable of infant sleep duration (infant sleep duration) post-pre infant sleep duration in the treatment group, negative ranks had a mean ranks value of 0.00 and sum of ranks of 0.00, while positive ranks had a mean ranks value of 4.00 and sum of ranks of 28.00, with a P-Value of 0.003.

In the variable frequency of urination (BAK) post-BAK pre in the treatment group, the negative rank has a mean ranks value of 0.00 and a sum of ranks of 0.00, while the positive rank has a mean ranks value of 4.50 and a sum of ranks of 36.00, with a P-value of 0.005. Similarly, in the post-BAB pre defecation frequency variable in the treatment group, the negative rank had a mean ranks value of 0.00 and sum of ranks of 0.00, while the positive rank had a mean ranks value of 4.00 and sum of ranks of 28.00, with a P-value of 0.008. Finally, in the variable post-rest time-pre rest time in the treatment group, negative ranks had a mean ranks value of 0.00 and sum of ranks of 0.00, while positive ranks had a mean ranks value of 4.00 and sum of ranks of 28.00, with a P-Value of 0.003.

Table 4. Effect of Oxytocin Massage on Milk Production

Variabel		n	Mean rank	Sum of ranks	P-Value
Baby Weight Post- Baby Weight Pre	Negative ranks	0	0,00	0,00	0,157
	Positive ranks	2	1,50	3,00	
	tiets	8			
F. Breastfeeding Post- F. Breastfeeding Pre	Negative ranks	0	0,00	0,00	0,083
	Positive ranks	3	2,00	6,00	
	tiets	7			
Infant sleep duration Post- Infant sleep duration Pre	Negative ranks	0	0,00	0,00	0,157
	Positive ranks	2	1,50	3,00	
	tiets	8			
Frequency of urination Post- Frequency of urination Pre	Negative ranks	0	0,00	0,00	0,157
	Positive ranks	2	1,50	3,00	
	tiets	8			
Frequency of defecation Post- Frequency of defecation Pre	Negative ranks	0	0,00	0,00	0,083
	Positive ranks	3	2,00	6,00	
	tiets	7			
Mom's Break Time Post - Mom's Break Time Pre	Negative ranks	0	0,00	0,00	0,157
	Positive ranks	2	1,50	3,00	
	tiets	8			
Total	**20**	**10**			

Based on the data in Table 4, it can be seen that in the variable of infant weight (BW) post-BB pre in the control group, the negative rank has a mean ranks value of 0.00 and sum of ranks of 0.00, while the positive rank has a mean ranks value of 1.50 and sum of ranks of 3.00, with a P-value of 0.157. In the variable of breastfeeding frequency (F. breastfeeding) post-F. breastfeeding pre in the control group, the negative rank had a mean ranks value of 0.00 and sum of ranks of 0.00, while the positive rank had a mean ranks value of 2.00 and sum of ranks of 6.00, with a P-value of 0.83. For the variable infant sleep duration (infant sleep duration) post-pre infant sleep duration in the control group, negative ranks had a mean ranks value of 0.00 and sum of ranks of 0.00, while positive ranks had a mean ranks value of 1.50 and sum of ranks of 3.00, with a P-Value of 0.157.

In the variable frequency of urination (BAK) post-BAK pre in the control group, the negative rank has a mean ranks value of 0.00 and a sum of ranks of 0.00, while the positive rank has a mean ranks value of 1.50 and a sum of ranks of 3.00, with a P-value of 0.157. Similarly, in the post-BAB pre defecation frequency variable in the control group, negative ranks had a mean ranks value of 0.00 and sum of ranks of 0.00, while positive ranks had a mean ranks value of 2.00 and sum of ranks of 6.00, with a P-value of 0.083. Finally, in the variable post-rest time-pre rest time in the control group, negative ranks had a mean ranks value of 0.00 and sum of ranks of 0.00, while positive ranks had a mean ranks value of 1.50 and sum of ranks of 3.00, with a P-Value of 0.157.

Table 5. Effect of Oxytocin Massage on Milk Production

Variabel	Mean Rank+Sum of Ranks		P-Value
	Treatment	Control	
Baby Weight	13,000+130,00	8,00+80,00	0,012
Breastfeeding Frequency	13,50+135,00	7,50+75,00	0,004
Infant Sleep Duration	14,00+140,00	7,00+70,00	0,001
Frequency of Urination	13,00+130,00	8,00+80,00	0,012
Frequency of Defecation	13,50+135,00	7,50+75,00	0,004
Mom's Break Time	14,00+140,00	7,00+70,00	0,001

From Table 5, it can be seen that in the variable of infant weight after undergoing oxytocin massage, the treatment group had a mean ranks value of 13.00 and sum of ranks of 130.00. In the control group, the baby's weight after control had a mean ranks value of 8.00 and a sum of ranks of 80.00, with a P-Value after of 0.012. In the variable of breastfeeding frequency after, the treatment group had a mean ranks value of 7.50 and a sum of ranks of 75.00, with a P-Value after of 0.004. For the variable of infant sleep duration after oxytocin massage, the treatment group had a mean ranks value of 14.00 and a sum of ranks of 140.00. In the control group, infant sleep duration after control had a mean ranks value of 7.00 and sum of ranks of 70.00, with a P-Value after of 0.001.

In the variable of frequency of urination (BAK) after oxytocin massage, the treatment group had a mean ranks value of 13.00 and sum of ranks of 130.00. In the control group, the frequency of urination after control had a mean ranks value of 8.00 and a sum of ranks of 80.00, with a P-Value after of 0.012. In the defecation frequency variable after oxytocin massage, the treatment group had a mean ranks value of 13.50 and a sum of ranks of 135.00. In the control group, the frequency of defecation after control had a mean ranks value of 7.50 and a sum of ranks of 75.00, with a P-Value after of 0.004. Finally, in the variable of maternal resting time after oxytocin massage, the treatment group had a mean ranks value of 14.00 and a sum of ranks of 140.00. In the control group, the mother's resting time after the control had a mean ranks value of 7.00 and a sum of ranks of 70.00, with a P-Value after of 0.001.

Infant Weight between groups (treatment and control) and between variables (before and after) of Oxytocin Massage.

The results showed that in the variable of infant weight (before and after) undergoing oxytocin massage, the treatment group had a P-value of 0.005 < 0.05, while the control group had a P-value of 0.157 > 0.15. Therefore, it can be concluded that the baby's weight after undergoing oxytocin massage has a very significant effect on postpartum mothers at the Waimital Health Center, Kairatu District, West Seram Regency. In contrast, the control group showed no significant effect.

This finding is consistent with research conducted by Kartini (2019) with the title "The Effect of Oxytocin Massage Application on Breast Milk Production in Post Partum Mothers at Balara Health Center," which states that the application of oxytocin massage contributes to an increase in baby weight with a P-Value of 0.000.

Thus, the researcher assumed that the treatment group did have a significant effect, this was due to the oxytocin massage intervention on the treatment group respondents which had an impact on the weight variable. Meanwhile, the control

group did not show a significant effect because they did not receive oxytocin massage treatment.

This result is also in accordance with the theory that infants who receive exclusive breastfeeding tend to have a healthier and proportional body weight in a longer period of time compared to infants who get nutrients from formula milk (Katherine, 2008).

Frequency of Infant Feeding between groups (treatment and control) and between variables (before and after) of Oxytocin Massage Implementation.

The results showed that in the variable of infant breastfeeding frequency (before and after) undergoing oxytocin massage, the treatment group had a P-value of 0.008 < 0.05, while the control group had a P-value of 0.157 > 0.05. Therefore, it can be concluded that the frequency of breastfeeding after undergoing oxytocin massage has a very significant effect on postpartum mothers at the Waimital Health Center, Kairatu District, West Seram Regency, while the control group did not show a significant effect.

This finding is in line with research conducted by Purnamasari Kurniati Devi (2021) in her research entitled "Oxytocin Massage Method, One of the Efforts to Increase Breast Milk Production in Post Partum Mothers," which showed a significant difference in the average increase in breastfeeding frequency between the treatment group and the control group with a value of (p=0.000). The effect of oxytocin massage on the treatment group was seen from the average increase in infant breastfeeding frequency which was greater than the control group.

Based on these results, the researcher assumed that the treatment group had a significant effect, this was due to the oxytocin massage intervention on the treatment group respondents which had an impact on the breastfeeding frequency variable. Meanwhile, the control group did not show a significant effect because the respondents did not receive oxytocin massage treatment.

Infant sleep duration between groups (treatment and control) and between variables (before and after) of Oxytocin Massage Application.

The results showed that in the Infant Sleep Duration variable (before and after) undergoing oxytocin massage, the treatment group had a P-value of 0.003 < 0.05, while the control group had a P-value of 0.157 > 0.05. Thus, it can be concluded that the length of infant sleep after undergoing oxytocin massage has a very significant effect on postpartum mothers at the Waimital Health Center, Kairatu District, West Seram Regency. Meanwhile, the control group did not show a significant effect.

This finding is in line with research conducted by Doko Tabita Mariana (2019) in her research entitled "The effect of the application of oxytocin massage by husbands on increasing breast milk production in postpartum mothers," which revealed a significant difference in the average difference in the increase in the length of infant sleep between the treatment group and the control group with a value of (p=0.000). The effect of oxytocin massage on the treatment group can be seen from the greater average increase in infant sleep duration compared to the control group.

Based on these results, the researcher assumed that the treatment group had a significant effect, this was due to the intervention of oxytocin massage on the treatment group respondents which had an impact on the variable of infant sleep duration. Meanwhile, the control group did not show a significant effect because they did not receive oxytocin massage treatment to the respondents.

Frequency of Infant Urination between groups (treatment and control) and between variables (before and after) of Oxytocin Massage Application

The results showed that in the variable Frequency of Infant Urination (before and after) undergoing oxytocin massage, the treatment group had a P-value of 0.005 < 0.05, while the control group had a P-value of 0.157 > 0.05. Therefore, it can be concluded that the frequency of urination after undergoing oxytocin massage has a very significant effect on postpartum mothers, and the same applies to the treatment group at the Waimital Health Center, Kairatu District, West Seram Regency. This result is different from the control group which did not show a significant effect.

This study is consistent with research conducted by Suryani Emi (2013) in her research titled "The effect of oxytocin massage on breast milk production of post partum mothers in BPM Klaten Regency Area," which showed a significant difference in the mean difference in the increase in frequency of urination of infants between the treatment group and the control group with a value of (p=0.001). The impact of oxytocin massage on the treatment group was seen from a greater average increase in the frequency of infant urination compared to the control group.

Based on this finding, the researcher assumed that the treatment group had a significant effect, due to the provision of oxytocin massage to the treatment group respondents which affected the urination frequency variable. In contrast, in the control group, there was no significant effect because there was no oxytocin massage treatment to the respondents.

Frequency of Defecation of Infants between groups (treatment and control) and between variables (before and after) of Oxytocin Massage.

The results showed that in the variable Frequency of Defecation (before and after) undergoing oxytocin massage, the treatment group had a P-value of 0.005 < 0.05, while the control group had a P-value of 0.157 > 0.05. Therefore, it can be concluded that the frequency of defecation after undergoing oxytocin massage has a very significant effect on postpartum mothers, and the same applies to the treatment group at the Waimital Health Center, Kairatu District, West Seram Regency. This result was inversely proportional to the control group which did not show a significant effect.

This study is in line with research conducted by Doko Tabita Mariana (2019) in her research entitled "The effect of the application of oxytocin massage by husbands on increasing breast milk production in postpartum women," which showed a significant difference in the mean difference in the increase in bowel movement frequency between the treatment group and the control group with a value of (p=0.000). The impact of oxytocin massage

on the treatment group was seen from a greater average increase in the frequency of defecation compared to the control group.

Based on this finding, the researcher assumed that the treatment group had a significant effect, due to the provision of oxytocin massage to the treatment group respondents which influenced the defecation frequency variable. In contrast, in the control group, there was no significant effect because there was no treatment in the form of oxytocin massage to the respondents.

Frequency of Mother's Rest Time between groups (treatment and control) and between variables (before and after) of Oxytocin Massage Implementation.

The results showed that in the variable of the Frequency of Mother's Rest Time (before and after) undergoing oxytocin massage, the treatment group had a P-value of 0.003 < 0.05, while in the control group the P-value was 0.157 > 0.05. Therefore, it can be concluded that the frequency of maternal rest time after undergoing oxytocin massage has a very significant effect on postpartum mothers, and the same applies to the treatment group at the Waimital Health Center, Kairatu District, West Seram Regency. Meanwhile, the control group showed no significant effect.

This study is in line with research conducted by Aristianti Kun (2019) in her research entitled "The effect of the application of oxytocin massage by husbands on increasing breast milk production in postpartum women," which showed a significant difference in the average difference in the mother's rest time which was greater between the treatment group and the control group with a value of (p=0.001). The impact of oxytocin massage on the treatment group was seen from a greater increase in the mean resting time of mothers compared to the control group.

Based on this finding, the researcher assumed that the treatment group had a significant effect, due to the provision of oxytocin massage to the treatment group respondents which affected the variable of maternal rest time. In contrast, in the control group, there was no significant effect because there was no treatment in the form of oxytocin massage to the respondents.

Analysis of the Effect of Oxytocin Massage on Breast Milk Production Based on Baby's Weight in Post Partum Mothers

Judging from the results of the study regarding breast milk production based on the baby's weight between the treatment group and the control group after undergoing oxytocin massage, it was found that the P-value was 0.012. This indicates that there is a significant difference between the two groups in terms of infant weight gain after oxytocin massage session.

Infant weight is one of the indicators of breast milk fluency, where according to the criteria, if breast milk is fluent, the baby's weight will not decrease by more than 10% in the first week of birth. In fact, if the baby is exclusively breastfed, the decrease is only about 3-5%. Judging from the results of the study, all infants in the treatment group experienced an increase in weight, indicating that they received sufficient breast milk, and the mother's milk production was considered smooth. According to Sweet (2002), weight loss in well-nourished infants usually only occurs up to the 3rd day after birth, after which

there will be an average increase of about 200 grams per week.

The results of this study are in line with Khanal's research in 2016, which showed that mothers who received back massage experienced an increase in baby weight. Morhenn's research in 2012 also showed an increase in baby weight after being given oxytocin massage. The conclusion that can be drawn from this study is that the increase in baby weight for 7 days after postpartum mothers get oxytocin massage can increase milk production, resulting in more frequent and longer breastfeeding frequency, which ultimately has an impact on the increase in baby weight.

Analysis of the Effect of Oxytocin Massage on Breast Milk Production Based on the Frequency of Breastfeeding Infants in Post Partum Mothers

Judging from the results of the study on breast milk production based on the frequency of infant feeding between the treatment group and the control group after performing oxytocin massage using the Wilcoxon test, it was found that the P-value was 0.004. This indicates that there is a significant difference between the two groups regarding the increase in infant breastfeeding frequency after undergoing oxytocin massage.

Breastfeeding the baby immediately after birth has its own importance as this process stimulates the areola and triggers prolactin production. The release of milk from the mammary glands is a key factor in its continued production. Breast milk contains inhibitory chemicals that should not be used; if the milk is not sucked or expelled from the mammary glands for a long time, the chemicals can stop the production of cells that produce milk. The baby's consistency in feeding helps to increase milk production every day with nutritional support from the mother.

The more frequently the baby suckles on the mother's breast, the more the milk production and output will increase. Especially in the early months after childbirth, the frequency of breastfeeding is key to ensuring adequate milk production and output from the mother. The frequency of breastfeeding is related to the stimulation of two hormones in the breast glands, prolactin and oxytocin (Widiyanto, 2012). This finding is consistent with Suryani's study which showed that the frequency of breastfeeding on the first day after birth ranged from 4-5 times and increased in the first week.

Analysis of the Effect of Oxytocin Massage Application on Breast Milk Production Based on the Length of Infant Sleep in Post Partum Mothers

Judging from the results of the study on breast milk production based on the length of infant sleep between the treatment group and the control group after undergoing oxytocin massage using the Wilcoxon test, it was found that the P-value was 0.001. This indicates a significant difference between the two groups regarding the length of infant sleep after undergoing oxytocin massage.

Infant sleep duration is an important factor in assessing the adequacy of breastfeeding after breastfeeding in a day. The findings of this study are consistent with Suryani's study in 2011, where infants' sleep duration showed significant differences on day 1 and day 7 after oxytocin massage. Infants

tended to sleep calmly and soundly after breastfeeding sessions (Suryani, 2011).

The adequacy of breastfeeding is also reflected in the infant's behavior, where infants who get enough breast milk are usually calm, not fussy, and sleep well. However, it should be noted that successful breastfeeding is also influenced by the mother's comfort level, which will indirectly affect milk production, including nipple chafing, swelling and pain. These problems can be reduced by mothers breastfeeding their babies correctly and frequently. Another study by Moberg (1998) showed that oxytocin is released when the mother is comfortable, gets enough touch, has the right body temperature, and is free from stress or in a relaxed state.

Analysis of the Effect of Oxytocin Massage on Breast Milk Production Based on Frequency of Infant Urination in Post Partum Mothers

Judging from the results of the study regarding breast milk production based on the frequency of infant urination between the treatment group and the control group after undergoing oxytocin massage using the Wilcoxon test, the P-value was 0.012. This finding indicates a significant difference between the two groups in terms of the frequency of infant urination after undergoing oxytocin massage, which has an impact on increasing breast milk production.

The results of this study are consistent with the findings reported by KH Endah Widhi Astuti in 2011, where the frequency of infant urination showed a significant difference on day 1 and day 7 after oxytocin massage, with a P-Value of 0.001. This indicates that infants tend to urinate frequently when getting adequate nutrition. The frequency of urination between 6 to 8 times in 24 hours with a clear yellowish color is an indicator that the baby receives sufficient breast milk (Soetjiningsih, 2005).

Based on these results, it can be assumed that the treatment group showed a significant effect on increasing breast milk production after undergoing oxytocin massage. This is due to the oxytocin massage treatment given to the treatment group respondents and has an impact on the urination frequency variable. Meanwhile, the control group did not show a significant effect, probably because there was no treatment in the form of oxytocin massage given to the control group respondents.

Analysis of the Effect of Oxytocin Massage on Breast Milk Production Based on Frequency of Defecation of Infants in Post Partum Mothers

Judging from the results of the study regarding breast milk production based on the frequency of infant defecation between the treatment group and the control group after undergoing oxytocin massage using the Wilcoxon test, the P-value was 0.004. This finding shows that there is a significant difference between the two groups with the frequency of infant defecation after undergoing oxytocin massage, which has an impact on increasing breast milk production.

The results of this study are consistent with the findings of Aristianti Kun in 2019, where the frequency of infant defecation showed a difference on the first day and the 7th day after oxytocin massage towards increased breast milk production, with a P-Value of 0.000. The process of defecation,

especially in the form of meconium, usually occurs within 24 hours after the baby is born. Furthermore, the color of the stool of infants who are breastfed with breast milk will change to yellow and mushy with the appropriate frequency.

This study is in line with the results of Machmudah's research in 2011, which showed that there was an increase in the frequency of infant defecation after oxytocin and oketani massage, especially in terms of the frequency of defecation in a day. Breastfed infants have different defecation patterns compared to formula-fed infants. Breastfed infants have more frequent and golden yellow bowel movements.

Based on these results, it can be assumed that the treatment group showed a significant effect on increasing breast milk production after undergoing oxytocin massage. This is due to the oxytocin massage treatment given to the treatment group respondents and the impact on the defecation frequency variable. Meanwhile, the control group did not show a significant effect, probably because there was no treatment in the form of oxytocin massage given to the control group respondents.

Analysis of the Effect of Oxytocin Massage Application on Breast Milk Production Based on Mother's Rest Time in Post Partum Mothers

Judging from the results of the study regarding breast milk production based on the frequency of maternal rest time between the treatment group and the control group after undergoing oxytocin massage using the Wilcoxon test, the P-value was 0.001. This finding indicates a significant difference between the two groups with the frequency of maternal rest time after undergoing oxytocin massage, which has an impact on increasing breast milk production.

The results of this study are in line with Aristianti Kun's research in 2019, where the mother's resting time showed a difference on the first day and the 7th day after oxytocin massage was performed on increasing breast milk production, with a P-Value of 0.001. The rest factor does have a significant influence on breast milk production. If the mother is too tired and lacks rest, breast milk production also tends to decrease.

In addition, the baby's irregular sleeping pattern in the first months after giving birth makes mothers often feel less rested. However, this can be overcome by following the baby's sleep pattern, which is sleeping when the baby falls asleep and waking up when the baby wakes up for feeding. By following the baby's sleep pattern, mothers can get enough rest. Research conducted by Kendall in 2011 also showed that mothers who fully breastfeed their babies tend to prefer to sleep when the baby falls asleep, compared to mothers who give combined milk or formula to their babies.

In this study, on the 7th day, the treatment group experienced a very significant increase in breast milk production on various variables, such as baby's weight, frequency of defecation, frequency of urination, frequency of breastfeeding, baby's sleep duration, and mother's rest. Therefore, it can be concluded that the use of oxytocin massage in the treatment group has a significant effect on breast milk production compared to the control group.

research conducted by Nurul (2019) with the title "The Effect of Oxytocin Massage on Breast Milk Production in Post Sectio Caesarea Mothers at Sundari General Hospital Medan." The statistical test results showed a p value of 0.000 ($p < 0.05$), indicating a change that includes an increase in milk production and excretion between the mean value of milk production before and after intervention in the group.

This study received support from the theory expressed by Pillitry in Nurul (2019), namely that oxytocin massage can stimulate the anterior and posterior pituitary to release the hormone oxytocin. Frequent breastfeeding also plays a role in emptying the breasts, preventing breast swelling, and accelerating milk release. The correspondence between the results of the study and the theory lies in the effect of massage on the spine, which stimulates prolactin and oxytocin hormones, increases the smoothness of breast milk, and provides comfort to postpartum mothers by reducing breast swelling and milk supply.

Oxytocin massage has an important role in the process of releasing breast milk, and these findings are in line with research conducted by Intan (2018) with the title "Application of Oxytocin Massage for Breastfeeding Mothers in the Post Partum Period at Puskesmas Mlati II." The results of the application of oxytocin massage to increase milk production in both clients showed success, where milk production became smoother.

Another study conducted by Intan (2018) with the title "The Effect of Oxytocin Massage on Breast Milk Production in Post Partum Mothers at RSU Haji Medan in 2019" also gave similar results. By involving 20 respondents of post partum mothers at RSU Haji Medan in 2019, this study found that there was a significant difference between breast milk production before and after oxytocin massage therapy. The mean value of breast milk production before the test was 0.00, while after the oxytocin massage test it increased to 190.00. The statistical test value showed that there was a significant effect of breast milk production, with a Z value of -3,844 and a p value of 0.000.

Umy (2018) also conducted a study entitled "The Effect of Oxytocin Massage on Breast Milk Fluency in Primiparous Mothers" involving 25 respondents. From the results of the Wilcoxon difference test, a P-value of 0.000 was obtained, indicating that there was an effect of oxytocin massage on breast milk fluency. Oxytocin massage is considered as a solution to overcome the lack of milk production by stimulating prolactin and oxytocin hormones after childbirth. The massage on the spine up to the fifth-sixth costae bone aims to increase the oxytocin hormone, provide a sense of calm to the mother, and automatically help the milk production. This process also involves the normal sucking of the baby and the colostrum that comes out as a sign of the active oxytocin reflex.

CONCLUSIONS AND RECOMMENDATIONS

Thus, it can be concluded that the application of oxytocin massage has a highly significant effect on breast milk production in postpartum mothers in the treatment group.

BIBLIOGRAPHY

Adriani P (2007), Perbedaan Produksi ASI Sebelum Dan Sesudah Pijat Oksitosin Dan Perawatan Payudara Pada Ibu Nifas Di RSUD dr. R. Goeteng Tarunadibrata Purmalingga 2017.

Asih Y, Risneni (2016), Asuhan Kebidanan Nifas Dan Menyusui. Ari M, editor. Jakarta Timur: TIM; 2016

Astuti S, Judistiani TD, Rahmiati L, Susanti AI (2015), Asuhan kebidanan Nifas & Menyusui. Astikawati R, editor. Erlangga; 2015.

Bartick MC, Schwarz EB, Green BD, Jegier BJ, Reinhold AG, Colaizy TT, et al. (2017), Sub optimal breast feeding in the United States: Maternal and pediatric health outcomes and costs. Matern Child Nutr. 2017

Delima M, Arni G, Rosya E. (2017), Pengaruh Pijat Oksitosin Terhadap Peningkatan Produksi Asi Ibu Menyusui Di Puskesmas Plus Mandiangin. J Ipteks Terap. 2017

Doko Tabita Mariana, Aristianti Kun, Suhoryo Hadisaputra (2019), Pengaruh Pijat Oksitosin Oleh Suami Terhadap Peningkatan Produksi Asi Pada Ibu Nifas. Program Kebidanan Sains Terapan Pasca Sarjan, Poltekes Kemnekes Semarang 2019.

Emi Suryani (2013), Pengaruh Pijat Oksitosin Terhadap Produksi Asi Ibu Post Partum Di BPM Wilayah Kabupaten Klaten . Kementrian Kesehatan Politeknik Kesehatan Surakarta Jurusan Kebidanan. 2013

Friedman, etall (2016), Keperawatan Keluarga, Teori Dan Pra tik.Jakarta:EGC

Hamzah DF. Jurnal Jumantik V3.i2. J Jumantik 2018

Handayani T (2017), Pemberian Pijat Oksitosin Terhadap Pengeluaran Kolostrum Pada Asuhan Keperawatan Ny.E Dengan Post Partum Sectio Caesarea Atas Indikasi Ketuban Pecah Dini (KPD) Di Ruang Mawar I RSUD Dr. Moewardi Surakarta Thun 2018.

Haryono R, Setianingsih S.(2017), Manfaat ASI EKSKLUSIF Untuk Buah Hati Anda. Yogyakarta: Gosyen Publishing; 2019

Husniyah M, Subiyatun S (2017), Pengaruh Pijat Oksitosin Terhadap Produksi ASI Pada Ibu Nifas Di Puskesmas Jetis Kota Yogyakarta. Universitas' Aisyiyah Yogyakarta; 2017.

Intan Natalia (2019), Pengaruh Pijat Oksitosin Terhadap Produksi Asi Pada Ibu Post Partum Di Rsu Haji Medan Tahun 2019. Program Studi D4 Kebidanan Fakultas Farmasi Dan Kesehatan Institut Kesehatan Helvetia Medan 2019.

Intan Puja Yulia (2018), Penerapan Pijat Oksitosin Ibu Menyusui Pada Masa Post Partum Di Puskesmas Mlati II. Prodi D-III Keperawatan Jurusan Keperawatan Politeknik Kesehatan Kementrian Kesehatan Yogyakarta Tahun 2018.

Kartini (2020), Pengaruh Pijat Oksitosin Terhadap Peningkatan Produksi Asi Pada Ibu Post Partum Di Puskesmas Balara. Jurnal Keperawatan Indonesia .

Kathrine. (2008). Cara Menyusui Yang Baik . Jakarta : Aream

KH. Endah Widhi Astuti (2013), Pengaruh Pijat Oksitosi Terhadap Produksi Asi Ibu Post Partum Di Bpm Wilayah Kabupaten Klaten . Kementrian Kesehatan Politeknik

Kesehatan Surakarta Jurusan Kebidanan. 2013

Khanal, L. (2012). Pengaruh Pijat Oksitosin terhadap Involusi Uterus pada Ibu Post Partum di Ruang Post Partum Kelas III RSHS Bandung. Students e-Journal,

Kun aristianti (2019), Pengaruh Penerapan Pijat Oksitosin Oleh Suami Terhadap Peningkatan Produksi Asi Pada Ibu Nifas . Kementrian Kesehatan Politeknik Kesehatan Surakarta Jurusan Kebidanan.

Kurniati devi purnamasari (2021), Metode Pijat Oksitosin, Salah Satu Upaya Meningkatkan Produksi Asi Pada Ibu Post Partum. Prodi D-III Kebidanan, Fakultas Ilmu Kesehatan, Universitas Galuh, Ciamis, Jawa Barat, Indonesia

Lestari N. (2017), (OxytocinMassage on Postpartum Primipara Mother to the Breastmilk Production AndOxytocin Hormone Level). 2017

Marliandiani Y, Ningrum NP (2015), Asuhan kebidanan Pada Masa Nifas dan Menyusui. Jakarta Selatan: Salemba Medika; 2015.

Marmi (2017), Asuhan Kebidanan Pada Masa Nifas. Riyadi S, editor. Yogyakarta: PUSTAKA PELAJAR; 2017

Masyarakat, J. P. (2020). PELATIHAN PIJAT OKSITOSIN BAGI PENDAMPING IBU NIFAS Jurusan Kebidanan Poltekkes Kemenkes Palu 2020.

Niven (2000), Psikologi Kesehatan Pengantar Untuk Perawat & Professional Kesehatan Lain.Jakarta: EGC.

Nurapandi, A., Rahayu, Y., Novianti, D., Rahmawati, N., & Firdaus, N. R. (2022). Persepsi Ibu Menyusui Usia Produktif Dibawah 35 Tahun Tentang Stunting. HealthCare Nursing Journal, 4(2), 273-277.

Nurul Husna (2019), Pengaruh Pijat Oksitosin Terhadap Produksi ASI Pada Ibu Post Sectio Caesarea Dirumah Sakit Umum Sundari Medan. Fakultas Keperawatan Universitas Sumatera Utara 2019.

Pilaria E, Sopiatun R. (2017), Pengaruh Pijat Oksitosin Terhadap Produksi Asi Pada Ibu Postpartum Di Wilayah Kerja Puskesmas Pejeruk Kota Mataram Tahun 2017. J Kedokt Yasri 26. 2017.

Pollard M. ASI(2017), Asuhan Berbasis Bukti. Jakarta: Buku Kedokteran; 2017.

Profil kesehatan indonesia (2017), Propil Kesehatan Indonesia 2017 [Internet]. 2017. 496 . Available from: website: http://www.kemkes.go.id.

Profil Kesehatan Maluku 2019.

Rukiyah AY, Yulianti L. (2018), Asuhan Kebidanan Pada Ibu Masa Nifas. Jakarta: CV. Trans Info Media; 2018.

Sari EP (2016), Hubungan Status Gizi Terhadap Produsi ASI Pada Ibu Menyusui Bayi Umur 0-6 Bulan. 2015; 25. Iman M. Panduan Penyusunan Karya Tulis Ilmiah Bidang Kesehatan. Suroyo RB, editor. Bandung: Citapustaka Media Perintis; 2016.

Umy Naziroh (2017), Program Studi D4 Kebidanan Fakultas Farmasi Dan Kesehatan Institut Kesehatan Helvetia Medan 2019. Program Studi D4 Kebidanan Fakultas Farmasi Dan Kesehatan Institut Kesehatan Helvetia Medan 2019.

Widiyanto S. Avianti D, Tyas M. (2012). Hubungan Pendidikan dan Pengetahuan Ibu tentang ASI

Eksklusif dengan Sikap terhadap Pemberian ASI Eksklusif. Jurnal Kedokteran Muhhamadiyah, 1(1)

Widuri H. (2018), Cara Mengelola ASI EKSLUSIF Bagi Ibu Bekerja. Yogyakarta: Gosyen Publishing; 2018.

Zamzara RF, Ernawati D, Susanti A. (2016), Pengaruh Pijat Oksitosin Terhadap Waktu Pengeluaran Kolostrum Ibu Post Partum Sectio Caesaria. J Heal Sci. 2016.